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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/623,147      | 07/18/2003  | Chiun Wang           | U0128-703510        | 5212             |

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EXAMINER

THOMPSON, JEWEL VERGIE

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2855

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/623,147

Applicant(s)

WANG, CHIUN

Examiner

Jewel V Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/10/04</u> | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. Acknowledgement is made of the Information Disclosure Statement filed February 10 and March 24, 2004, which has been made record of and placed in the file.

### ***Pre-Amendment***

2. Acknowledgement is made of the Pre-Amendment filed March 4, 2004, which has been made record of and placed in the file.

### ***Claim Objections***

3. Claim 5 is objected to because of the following informalities: Claim 5 is dependent on itself. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 6-9, 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Weigand (5,837,903).

**Regarding claim 1**, Weigand teaches a flow sensor, comprising: a housing (12) comprising a fluid inlet (14) and a fluid outlet (16); a bypass (12) disposed between and

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fluidly connected to the inlet and the outlet, the bypass comprising at least one capillary tube (18); and a sensor unit fluidly connected to the housing inlet and outlet by a sensor conduit (22, 24); wherein the at least one capillary tube has a length substantially equal to a length of the sensor conduit (fig. 1)

**Regarding claim 2**, Weigand teaches the at least one capillary tube has a diameter substantially equal a diameter of the sensor conduit (col. 3, lines 43-45 and col. 4, lines 1 and 2).

**Regarding claim 6**, Weigand teaches the housing further comprises means for collecting a fluid (col. 3, lines 27-28)).

**Regarding claim 7**, Weigand teaches the sensor conduit comprises an inlet fluidly connected to the means for collecting a fluid (fig. 1).

**Regarding claim 8**, Weigand teaches the bypass comprises a plurality of capillary tubes (fig. 1).

**Regarding claim 9**, Weigand teaches means (36) for controlling fluid flow through the bypass .

**Regarding claim 12**, Weigand teaches a housing comprising a fluid inlet and a fluid outlet; a bypass disposed between and fluidly connected to the inlet and the outlet, the bypass comprising at least one capillary tube; and a sensor unit fluidly connected to the housing inlet and outlet by a sensor conduit, wherein the at least one capillary tube has an entrance effect substantially equal to an entrance effect of the sensor conduit (col. 3, lines 65-68 – col. 4, lines 1-6).

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**Regarding claim 14**, Weigand teaches a process for measuring fluid flow comprising: passing a fluid through at least one bypass tube having an entrance effect; passing the fluid through a sensor unit having a sensor conduit with an entrance effect substantially equal to the entrance effect of the at least one bypass tube; and measuring a characteristic of the fluid in the sensor conduit (col. 8, lines 24-40)

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weigand

**Regarding claims 3 and 11**, Weigand fails to explicitly teach the at least one capillary tube has a cross sectional shape substantially the same as that of the sensor conduit. However Weigand does show in fig. 2 the shape of the capillary tube. It would have been obvious to one of ordinary skill in the art at the time that the have made the capillary tube and the sensor tube substantially the same cross sectional shape, since applicant has not disclosed that having them the same shape solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the sensor tube and the capillary tube being different shapes.

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6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Weigand in view of Lucas (5,804,717).

**Regarding claim 4**, Weigand fails to teach the sensor conduit is a capillary tube. Lucas teaches in col. 1, lines 30-34 that the thermal mass flow transducers include one or more heating elements which transfer energy to a fluid flowing in a small laminar flow tube, usually having a cross-section of capillary size dimensions and sometimes referred to as a sensor tube. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to have used a capillary sized sensor as that taught by Lucas in the flow meter of Weigand for the purpose of having the ratio of fluid flow through the capillary tube and the bypass always be constant throughout the entire measurable range of rate of laminar flow (col. 1, lines 44-47)

7. Claim 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weigand in view of Ono et al 5,080,131).

**Regarding claim 10 and 13**, Weigand fails to teach the bypass includes a plurality of apertures uniformly disposed about a periphery of the bypass. Ono et al teaches in col. 8, lines 58-61 the bypass element provided with bypass holes in the axial direction is formed by providing a lot of concave grooves (33) in the width direction on the surface of a strip body. It would have been obvious to one of ordinary skill in the art at the time that the invention was made to have used provided this process of Ono et al in the bypass of Weigand for the purpose of accurately setting the flow rate by specifying the number of the concave grooves (col. 9, lines 3-5)

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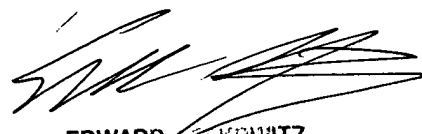
### Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jewel V Thompson whose telephone number is 571-272-2189. The examiner can normally be reached on 7-4:30, off alternate Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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